



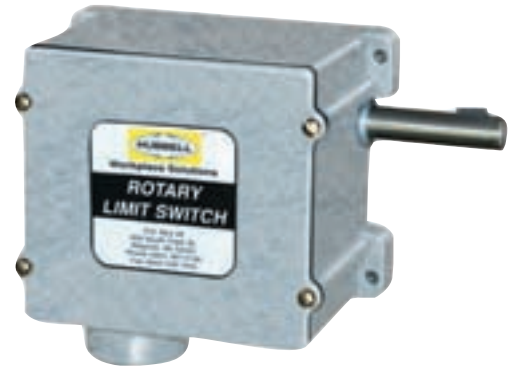
Workplace Solutions

# Furnas Brand Series 54 Rotary Limit Switches

Limit the travel of electrically operated doors, conveyors, hoists, machine tool work tables and similar devices. Equipment having rotating mechanisms, or linear motion which can be translated into rotational motion, can be controlled by these versatile switches. Furnas Series 54 switches can be mounted in any position and are easy to wire and adjust.

### Switches Feature

- Four Gear Ratios
- Standard, Long Dwell or Fine Adjustment Cams
- Right or Left Hand Shaft
- Easy to Wire and Adjust
- Mount in Any Position
- Rugged Die-cast Aluminum Housing
- Available for NEMA 1, NEMA 4, and NEMA 12 Applications
- Multi-use Shaft...Attach Drive Sprocket using Woodruff Key, Pin or Setscrew



### Application

Furnas Series 54 switches are designed to serve as pilot controls for magnetic reversing starters and contactors which in turn make and break full voltage between line and load. Contacts in the switch are operated when the external shaft is rotated. For the switch to perform a pilot control function, the contact must be wired in series with the coil circuit of a magnetic reversing starter or contactor.

The shaft may rotate in either direction. When tripped, if rotation direction is reversed, the contacts will reset in 1/4 to 1/2 turns, depending on shaft-to-cam ratio. Switches with Long Dwell Cams are available. These cams provides for the contacts to be actuated for a longer period of time as might be required in hoist or similar applications.

Fine adjustment cams are also available. This feature increases accuracy in setting the number of turns to cause the contact to operate.

### MODELS—Series 54

Model numbers are for RIGHT HAND SHAFT. For left hand shaft add **L** to model number.

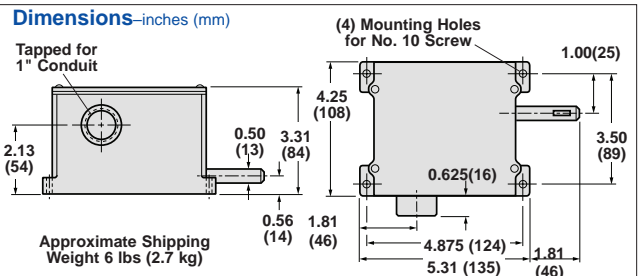
Gear Ratio	Turns of Drive Shaft To Trip Contacts				Contact Blocks	Circuits		NEMA 1 & 12 Industrial Use Model No.	NEMA 4 Watertight Model No.
	Max.	Min.	Overtravel	Reset		NO	NC		
<b>Standard Cams</b>									
18 to 1	16	1	1.75	0.25	2	2	2	54BB23FE	54BB23EE
					3	3	3		
					4	4	4		
36 to 1	32	1	3.5	0.5	2	2	2	54BB23FB	54BB23EB
					3	3	3		
					4	4	4		
72 to 1	64	1.5	7.5	1	2	2	2	54BB23FC	54BB23EC
					3	3	3		
					4	4	4		
108 to 1	96	2	11	1.5	2	2	2	54BB23FD	54BB23ED
					3	3	3		
					4	4	4		
<b>Long Dwell Cams</b>									
18 to 1	15	1	2.5	0.5	2	2	2	54EB23FE	54EB23EE
					3	3	3		
					4	4	4		
36 to 1	30	1.5	5	1	2	2	2	54EB23FB	54EB23EB
					3	3	3		
					4	4	4		
72 to 1	60	2	10	1.5	2	2	2	54EB23FC	54EB23EC
					3	3	3		
					4	4	4		
108 to 1	90	3	15	3	2	2	2	54EB23FD	54EB23ED
					3	3	3		
					4	4	4		
<b>Fine Adjustment</b>									
18 to 1	16	1	1.75	0.25	2	2	2	54BB73FE	54BB73EE
36 to 1	32	1	3.5	0.5	2	2	2	54BB73FB	54BB73EB
72 to 1	64	1.5	7.5	1	2	2	2	54BB73FC	54BB73EC
108 to 1	96	2	11	1.5	2	2	2	54BB73FD	54BB73ED

Field Modifications	
<b>Contact Block Kit (1 NO 1 NC)</b>	<b>Cat No.</b>
Standard Cam	54BBGB
Long Dwell Cam	54EBGB
<b>Contact Block Kit (2 NO 2 NC)</b>	
Standard Cam	54BBGD
Long Dwell Cam	54EBGD
<b>Accessories</b>	
Adjustment Tool	D27760001

Kits include switch block, cam and mounting hardware

**Operating Temperature Range:**  
-40°F (-40°C) to +185°F (+85°C)

**Contact Block Specifications**  
15 Amp 120, 240, 480 or 600 VAC.  
1/2 H.P. 120 VAC, 1.0 H.P. 240 VAC  
0.8 Amp 115 VDC, 0.4 Amp 230 VDC  
Pilot Duty 600 VAC Max.





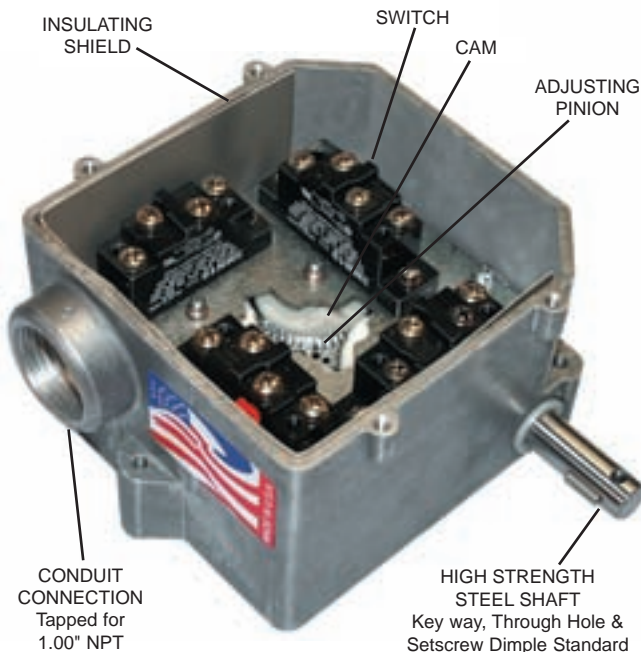
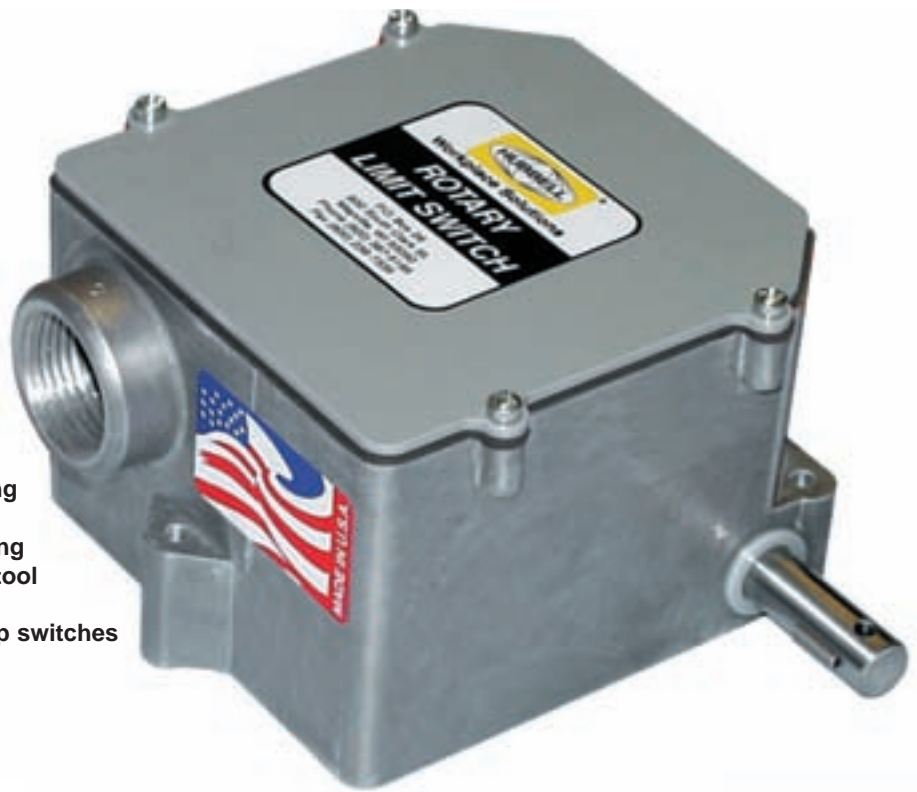
## Series 55 Rotary Limit Switches

Direct replacement for HWS Series 15 and G.E. Series CR115 switches

Limit the travel of electrically operated doors, conveyors, hoists, machine tool work tables and similar devices. Equipment having rotating mechanisms, or linear motion which can be translated into rotational motion, can be controlled by these versatile switches. Available with up to four S.P.D.T. or D.P.D.T. switch blocks for control of multiple functions.

### Switches Feature

- Six gear ratios
- Right hand, Left hand or Dual shaft models (RH shown in photos)
- Two, Three or Four switches
- Mount in any position
- Easy to wire.
- Rugged die cast enclosures
- NEMA 4 construction  
(Exceeds requirements of NEMA 1 and NEMA 12)
- High strength steel multi-use input shaft; #404 Woodruff key slot, 0.19 dia. hole and setscrew dimple
- Switch terminal screws for quick wiring
- Standard or Extended Dwell cams
- Easy, precision timing adjustment using standard screwdriver and provided tool
- Industrial grade bearings
- Industrial duty S.P.D.T. or D.P.D.T. snap switches are  and  listed



Right Hand Shaft—Four Switch Model

**Geared Rotary Limit Switches** for overtravel protection and other uses on material handling equipment, hoists, cranes, valves, compacting equipment, machine tool lead screws, packaging machinery, powered doors, gates and windows, etc.

**Mounting and shaft location allows direct replacement of HWS Series 15 and G.E. Series CR115 switches.**

Operating Temperature Range: -40°F (-40°C) to +185°F (+85°C)

### Contact Block Specifications

15 Amp 120, 240, 480 or 600 VAC.  
1/2 H.P. 120 VAC, 1.0 H.P. 240 VAC  
0.8 Amp 115 VDC, 0.4 Amp 230 VDC  
Pilot Duty 600 VAC Max.



Workplace Solutions

**LIMIT SWITCHES**

# Series 55 Rotary Limit Switches

## MODELS—Series 55

Gear Ratio	Turns of Drive Shaft To Trip Contacts				Contact Blocks	Circuits		RIGHT HAND SHAFT NEMA 4	LEFT HAND SHAFT NEMA 4	DUAL SHAFT NEMA 4
	Max.	Min.	Overtravel	Reset		NO	NC	Model No.*	Model No.*	Model No.*
<b>Standard Cams</b>										
20.5 to 1	18.0	1.0	2.5	0.5	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-20 55-4E-3SP-WR-20 55-4E-4SP-WR-20	55-4E-2SP-WL-20 55-4E-3SP-WL-20 55-4E-4SP-WL-20	55-4E-2SP-WB-20 55-4E-3SP-WB-20 55-4E-4SP-WB-20
42.5 to 1	36.5	1.0	6.0	0.5	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-40 55-4E-3SP-WR-40 55-4E-4SP-WR-40	55-4E-2SP-WL-40 55-4E-3SP-WL-40 55-4E-4SP-WL-40	55-4E-2SP-WB-40 55-4E-3SP-WB-40 55-4E-4SP-WB-40
80 to 1	68.0	1.5	12.0	0.75	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-80 55-4E-3SP-WR-80 55-4E-4SP-WR-80	55-4E-2SP-WL-80 55-4E-3SP-WL-80 55-4E-4SP-WL-80	55-4E-2SP-WB-80 55-4E-3SP-WB-80 55-4E-4SP-WB-80
111 to 1	97.0	2.0	14.0	1.25	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-111 55-4E-3SP-WR-111 55-4E-4SP-WR-111	55-4E-2SP-WL-111 55-4E-3SP-WL-111 55-4E-4SP-WL-111	55-4E-2SP-WB-111 55-4E-3SP-WB-111 55-4E-4SP-WB-111
222 to 1	192.0	3.0	30.0	2.5	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-222 55-4E-3SP-WR-222 55-4E-4SP-WR-222	55-4E-2SP-WL-222 55-4E-3SP-WL-222 55-4E-4SP-WL-222	55-4E-2SP-WB-222 55-4E-3SP-WB-222 55-4E-4SP-WB-222
333 to 1	285.0	4.0	48.0	3.5	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-333 55-4E-3SP-WR-333 55-4E-4SP-WR-333	55-4E-2SP-WL-333 55-4E-3SP-WL-333 55-4E-4SP-WL-333	55-4E-2SP-WB-333 55-4E-3SP-WB-333 55-4E-4SP-WB-333
<b>Extended Dwell Cams</b>										
20.5 to 1	17.0	1.0	3.25	0.25	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-20-LD 55-4E-3SP-WR-20-LD 55-4E-4SP-WR-20-LD	55-4E-2SP-WL-20-LD 55-4E-3SP-WL-20-LD 55-4E-4SP-WL-20-LD	55-4E-2SP-WB-20-LD 55-4E-3SP-WB-20-LD 55-4E-4SP-WB-20-LD
42.5 to 1	35.0	1.5	7.5	0.75	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-40-LD 55-4E-3SP-WR-40-LD 55-4E-4SP-WR-40-LD	55-4E-2SP-WL-40-LD 55-4E-3SP-WL-40-LD 55-4E-4SP-WL-40-LD	55-4E-2SP-WB-40-LD 55-4E-3SP-WB-40-LD 55-4E-4SP-WB-40-LD
80 to 1	66.0	2.0	14.0	1.25	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-80-LD 55-4E-3SP-WR-80-LD 55-4E-4SP-WR-80-LD	55-4E-2SP-WL-80-LD 55-4E-3SP-WL-80-LD 55-4E-4SP-WL-80-LD	55-4E-2SP-WB-80-LD 55-4E-3SP-WB-80-LD 55-4E-4SP-WB-80-LD
111 to 1	90.0	3.0	21.0	2.5	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-111-LD 55-4E-3SP-WR-111-LD 55-4E-4SP-WR-111-LD	55-4E-2SP-WL-111-LD 55-4E-3SP-WL-111-LD 55-4E-4SP-WL-111-LD	55-4E-2SP-WB-111-LD 55-4E-3SP-WB-111-LD 55-4E-4SP-WB-111-LD
222 to 1	182.0	4.0	40.0	4.0	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-222-LD 55-4E-3SP-WR-222-LD 55-4E-4SP-WR-222-LD	55-4E-2SP-WL-222-LD 55-4E-3SP-WL-222-LD 55-4E-4SP-WL-222-LD	55-4E-2SP-WB-222-LD 55-4E-3SP-WB-222-LD 55-4E-4SP-WB-222-LD
333 to 1	275.0	5.0	58.0	6.0	2 3 4	2 3 4	2 3 4	55-4E-2SP-WR-333-LD 55-4E-3SP-WR-333-LD 55-4E-4SP-WR-333-LD	55-4E-2SP-WL-333-LD 55-4E-3SP-WL-333-LD 55-4E-4SP-WL-333-LD	55-4E-2SP-WB-333-LD 55-4E-3SP-WB-333-LD 55-4E-4SP-WB-333-LD

\* S.P.D.T. switches shown. To order D.P.D.T. switches, substitute DP for SP in model number.  
 Example: Model Number 55-4E-3SP-WR-111-LD=S.P.D.T. switch. Model number 55-4E-3DP-WR-111-LD=D.P.D.T. switch.

Gear Ratio	Contact Blocks	HWS Series 15 Model No.	G.E. Series CR115 Model No.	HWS Series 55 Model No.
<b>Right Hand Shaft—Standard Dwell Cams</b>				
20.5 to 1	2	ES15-4211	CR115E121102	55-4E-2SP-WR-20
42.5 to 1	2	ES15-4221	CR115E122102	55-4E-2SP-WR-40
80 to 1	2	ES15-4231	CR115E123102	55-4E-2SP-WR-80
111 to 1	2	ES15-4241	CR115E124102	55-4E-2SP-WR-111
222 to 1	2	ES15-4251	CR115E125102	55-4E-2SP-WR-222
333 to 1	2	ES15-4261	CR115E126102	55-4E-2SP-WR-333
20.5 to 1	4	ES15-4411	CR115E141102	55-4E-4SP-WR-20
42.5 to 1	4	ES15-4421	CR115E142102	55-4E-4SP-WR-40
80 to 1	4	ES15-4431	CR115E143102	55-4E-4SP-WR-80
111 to 1	4	ES15-4441	CR115E144102	55-4E-4SP-WR-111
222 to 1	4	ES15-4451	CR115E145102	55-4E-4SP-WR-222
333 to 1	4	ES15-4461	CR115E146102	55-4E-4SP-WR-333
<b>Left Hand Shaft—Standard Dwell Cams</b>				
20.5 to 1	2	No Equivalent	CR115E121112	55-4E-2SP-WL-20
42.5 to 1	2	No Equivalent	CR115E122112	55-4E-2SP-WL-40
80 to 1	2	No Equivalent	CR115E123112	55-4E-2SP-WL-80
111 to 1	2	No Equivalent	CR115E124112	55-4E-2SP-WL-111
222 to 1	2	No Equivalent	CR115E125112	55-4E-2SP-WL-222
333 to 1	2	No Equivalent	CR115E126112	55-4E-2SP-WL-333
20.5 to 1	4	No Equivalent	CR115E141112	55-4E-4SP-WL-20
42.5 to 1	4	No Equivalent	CR115E142112	55-4E-4SP-WL-40
80 to 1	4	No Equivalent	CR115E143112	55-4E-4SP-WL-80
111 to 1	4	No Equivalent	CR115E144112	55-4E-4SP-WL-111
222 to 1	4	No Equivalent	CR115E145112	55-4E-4SP-WL-222
333 to 1	4	No Equivalent	CR115E146112	55-4E-4SP-WL-333
<b>Dual Shaft—Standard Dwell Cams</b>				
20.5 to 1	2	No Equivalent	CR115E121122	55-4E-2SP-WB-20
42.5 to 1	2	No Equivalent	CR115E122122	55-4E-2SP-WB-40
80 to 1	2	No Equivalent	CR115E123122	55-4E-2SP-WB-80
111 to 1	2	No Equivalent	CR115E124122	55-4E-2SP-WB-111
222 to 1	2	No Equivalent	CR115E125122	55-4E-2SP-WB-222
333 to 1	2	No Equivalent	CR115E126122	55-4E-2SP-WB-333
20.5 to 1	4	No Equivalent	CR115E141122	55-4E-4SP-WB-20
42.5 to 1	4	No Equivalent	CR115E142122	55-4E-4SP-WB-40
80 to 1	4	No Equivalent	CR115E143122	55-4E-4SP-WB-80
111 to 1	4	No Equivalent	CR115E144122	55-4E-4SP-WB-111
222 to 1	4	No Equivalent	CR115E145122	55-4E-4SP-WB-222
333 to 1	4	No Equivalent	CR115E146122	55-4E-4SP-WB-333

For replacement of HWS series 15 and G.E. series CR115 switches, please refer to Cross Reference chart at left.

